

(19)



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(11)

**EP 0 590 861 B1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**17.01.2001 Bulletin 2001/03**

(51) Int Cl.7: **G07F 7/08**, G06F 17/60,  
**G07F 7/10**

(21) Application number: **93307492.4**

(22) Date of filing: **22.09.1993**

**(54) Secure credit/debit card authorization**

Gesicherte Authentifizierung einer Kredit-, Debitkarte

Authorisation à haute sécurité d'une carte de débit/crédit

(84) Designated Contracting States:  
**AT BE CH DE ES FR GB IT LI NL SE**

(30) Priority: **29.09.1992 US 953418**

(43) Date of publication of application:  
**06.04.1994 Bulletin 1994/14**

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## Description

[0001] This invention relates to a method for authorizing a credit/debit card holder to purchase goods or services.

[0002] In recent years, telephone ordering of merchandise has become an increasingly common method of purchase. In a typical transaction, a caller calls a store, indicates the merchandise that is to be bought, provides his/her address for the delivery of the merchandise, and provides a credit/debit card (CDC) number. The vendor verifies that the CDC is valid and charges the purchase to that CDC. The vendor then sends the merchandise to the customer. A problem of this method of operation is that the customer must provide his/her CDC number to the vendor. This tends to compromise the secrecy of the CDC number which makes possible the fraudulent use of such a number. The possibility of such fraudulent use helps to keep the rates charged by credit card companies to the vendors high, and limits teletransaction usage.

[0003] EP-A-0 501 697 discloses a method according to the preamble of claim 1.

[0004] In the method disclosed in EP-A-0 501 697, a customer is connected to a vendor, and the customer and the vendor discuss the proposed transaction and come to an agreement on the price. The agreed price, and identification of the customer, are passed to a credit card data base which decides whether the transaction can be authorised. Since the authorisation process is carried out on an agreed price, this method is relatively inflexible - if the customer should decide to purchase additional goods, or higher range goods, it is necessary to repeat the authorisation process.

[0005] The present invention provides a method of authorising a purchase of goods or services as claimed in claim 1.

[0006] In accordance with applicant's invention, an advance is made over the methods of the prior art by connecting a customer desiring to order merchandise to the data base of a CDC company or to its authorised agent such as a common carrier; the caller then provides the CDC number to the data base, which after checking the authorisation of the CDC number, provides an authorisation indication to a vendor. The vendor charges the credit card company for the purchase using the authorisation code. Advantageously, the credit card number is only provided to the credit card company or carrier, not to the vendor.

[0007] According to the present invention, the authorisation indication that is transmitted from the data base to the vendor includes a limit of allowed expenditure for a transaction. It is therefore possible for the customer to change his order without the need to obtain fresh authorisation (provided, of course, that the changes do not exceed the limit of allowed expenditure).

[0008] In accordance with one feature of the invention, identification methods are used to identify the caller

and only provide authorisation for the purchase (transaction) if the caller is the owner of the CDC. In one specific embodiment of the invention, the caller is identified using voice recognition. Alternatively, or in addition, a personal identification number is used. Alternatively, or in addition, the caller is identified using automatic number identification (ANI) which is forwarded to the card company or agent as part of the caller identification.

[0009] In accordance with one feature of the invention, the authorisation code contains one or more additional fields. One such field is used to identify the vendor and thereby simplify the process of billing for the credit company. Another field provides the name and/or address of the credit card holder to reduce the effort of the vendor for obtaining this data. Another field specifies a limit of the time for which such credit is being allowed. Another field specifies the date and time of the authorization.

## Brief Description of the Drawing

[0010]

FIG. 1 is a block diagram illustrating the operation of applicant's invention; and

FIG. 2 is a flow diagram of the steps of a method for implementing the invention.

## Detailed Description

[0011] FIG. 1 is a block diagram of the operation of applicant's invention. A purchaser at a calling station 1 is connected via a telecommunications network 2, such as the public switched telephone network, to a credit/debit card (CDC) data base 5. The calling station provides to the data base 5 a CDC number, a personal identification number (PIN), and a sample of the caller's voice. The sample is routed to caller verification system 7 which is used to recognize the voice and to ensure that the recognized voice corresponds to the specified credit/debit card. The caller is then provided with new dial tone and calls the vendor 3. The telephone number of the vendor is passed from network 2 to CDC data base 5 using signaling network 4. The identity of the vendor is the final piece of data required by the CDC data base to provide the authorization code. This authorization code is passed from CDC data base 5 via signaling network 4 and network 2 to vendor 3. In one specific implementation of applicant's invention, the authorization number is provided over a D-channel of an integrated services digital network (ISDN) link to the vendor. Alternatively, this information may be provided using other signaling techniques such as dual tone multifrequency (DTMF) signaling.

[0012] After the vendor has received the authorization code, the vendor is connected to the calling station and receives verbal instructions from the calling station. These verbal instructions, such as for merchandise to

be ordered, are associated with the received authorization number and the vendor then transmits via network 2 and signaling network 4, the authorization code plus merchandise and charge information to the CDC data base 5 to charge the customer appropriately. The charge is valid only if the authorization code and the vendor identification correspond and any restrictions such as dollar limit and time limit are satisfied. The CDC company 6 is connected via the network and optionally via a data link to the CDC data base to allow the data base to be updated, for example, when a credit card is found to have been lost.

[0013] The authorization includes an authorization code specifying the dollar limit of the amount of credit being authorized for this transaction.

[0014] In accordance with one feature of the invention, the authorization code contains one or more additional fields. One such field is used to identify the vendor and thereby simplify the process of billing for the credit company. Another field provides the name and/or address of the credit card holder to reduce the effort of the vendor for obtaining this data. Another field specifies a limit of the time for which such credit is being allowed. Another field specifies the date and time of the authorization.

[0015] FIG. 2 is a flow diagram of steps performed to practice applicant's invention. Initially, block 200, a CDC holder (CDCH) wants to make a teletransaction. Block 201 and its succeeding blocks illustrate a method wherein the CDCH initially calls the data base of a card company or its agent. Block 203 illustrates that the card company requests the card number, and a PIN or a voice sample, and validates the card and its user, this request may not be necessary if the caller's telephone station has been identified by an Automatic Number Identification (ANI) number forwarded to the data base, and matching the recorded telephone number for that CDC. The data base verifies the authorization of the CDC holder to incur the expense and prepares an authorization code for transmission to the vendor. If the CDCH is so authorized, the CDCH is then given a new dial tone and calls the vendor (block 205). Block 207 indicates that the CDCH orders the products/services from the vendor who has been automatically provided with the authorization code. Eventually, the CDCH disconnects (block 209) and the vendor charges against the card using the authorization code (block 211) if the transaction has been authorized and the time and dollar values are not exceeded. This can be performed either by the vendor filling out a credit ticket or by the vendor providing information which is immediately sent back as a data message to the CDC data base.

[0016] An alternate approach is illustrated in block 241 and its successors. Here the CDCH calls the vendor directly (action block 241). The vendor connects the CDCH to the card validator data base and the card validation is performed in a transaction between the calling station 1 and CDC data base 5. The transfer of calling

station 1 to CDC data base 5 is performed by setting up a connection between the CDCH and the data base in such a way that it is impossible for the vendor to eavesdrop on this connection. The card is validated by the card validator using the card number, the PIN, and/or, if appropriate, voice recognition (action block 243). The CDCH is then returned to the vendor who is provided with an authorization code from the data base (action block 245). The CDCH then orders the products and the service against the authorization code received by the vendor (action block 247) and the CDCH eventually hangs up (action block 249). The vendor charges against the CDC using the authorization code (action block 251).

[0017] Note that in both of these scenarios the credit/debit card number is not provided to the vendor who only receives the authorization code.

[0018] In another alternative arrangement, when a customer has selected his/her merchandise or service, the customer is connected to the CDC data base from a convenient station, possibly including a card reader, located in the vendor's store. After the CDC number has been entered and the transaction authorized, the authorization code is provided audibly or in video or printed form for the vendor, at the convenient station or at an associated terminal.

[0019] It is to be understood that the above description is only of one preferred embodiment of the invention. Numerous other arrangements may be devised by one skilled in the art without departing from the scope of the invention. The invention is thus limited only as defined in the accompanying claims.

## Claims

1. A method of authorising a purchase of goods or services, comprising: responsive to receiving in a data base for authorising a credit/debit card (CDC) expenditure data from a holder (1) identifying a specific CDC, determining whether their CDC is authorised to incur an expenditure; and responsive to a determination that said CDC is authorised to incur said expenditure, transmitting from said data base (5) an authorisation indication to a vendor (3) of said goods or services, the identification of said CDC not being derivable from said authorisation code whereby the identification of said CDC is not provided to said vendor; the method being characterised in that said authorisation indication comprises an authorisation code for tracking a purchase transaction, the authorisation code comprising a limit of allowed expenditure for a transaction.
2. A method as claimed in claim 1 wherein said authorisation code further comprises one or more of the following: an identification of said vendor, date

and/or time data, a time limitation for a transaction, the name of a holder of said CDC, and an address of a holder of said CDC.

3. A method as claimed in claim 1, 2 wherein said data received in said data base comprises data for verifying the identity of the user of said CDC.
4. A method as claimed in claim 3 wherein said data for verifying comprises a personal identification number.
5. A method as claimed in claim 3 or 4 wherein said data for verifying comprises an automatic number identification of a caller station supplying said CDC identification,
6. A method as claimed in any preceding claim comprising the steps of:

establishing a voice connection to voice recognition means for recognising the identity of a caller; and  
using output of said voice recognition means to identify a user of said CDC.

grenzung für eine Transaktion, den Namen eines Inhabers der CDC und eine Adresse eines Inhabers der CDC.

3. Verfahren nach Anspruch 1, 2, wobei die in der Datenbank empfangenen Daten zum Verifizieren der Identität des Benutzers der CDC umfassen.
4. Verfahren nach Anspruch 3, wobei die Daten zum Verifizieren eine persönliche Identifikationsnummer umfassen.
5. Verfahren nach Anspruch 3 oder 4, wobei die Daten zum Verifizieren eine automatische Nummernidentifikation einer Anrufstation, die die CDC-Identifikation liefert, umfassen.
6. Verfahren nach einem voranstehenden Anspruch, umfassend die Schritte:

Einrichten einer Sprachverbindung zu einer Spracherkennungseinrichtung zum Erkennen der Identität eines Anrufers; und  
Verwenden einer Ausgabe der Spracherkennungseinrichtung, um einen Benutzer der CDC zu identifizieren.

#### Patentansprüche

1. Verfahren zum Authentifizieren eines Kaufs von Handelsgütern oder Dienstleistungen, umfassend:

in Antwort auf ein Empfangen, in einer Datenbank zum Authentifizieren einer Kredit-/Debitkarte (CDC)-Ausgabe, von Daten von einem Inhaber (1), die eine spezifische CDC identifizieren, ein Bestimmen, ob ihre CDC authentifiziert ist, eine Ausgabe zu tätigen; und

in Antwort auf eine Bestimmung, daß die CDC authentifiziert ist, die Ausgabe zu tätigen, ein Übertragen eines Authentifizierungsvermerks von der Datenbank (5) zu einem Verkäufer (3) der Handelsgüter oder Dienstleistungen, wobei die Identifizierung der CDC von dem Authentifizierungscode nicht ableitbar ist, wodurch die Identifizierung der CDC dem Verkäufer nicht bereitgestellt wird; wobei das Verfahren dadurch gekennzeichnet ist, daß der Authentifizierungsvermerk einen Authentifizierungscode zum Verfolgen einer Kauftransaktion umfaßt, wobei der Authentifizierungscode eine Begrenzung der zugelassenen Ausgaben für eine Transaktion umfaßt.

2. Verfahren nach Anspruch 1, wobei der Authentifizierungscode weiter eines oder mehreres von dem Folgenden umfaßt: eine Identifizierung des Verkäufers, ein Datum und/oder Zeitdaten, eine Zeitbe-

#### Revendications

1. Procédé d'autorisation d'un achat de biens ou de services, comprenant:

en réponse à la réception, dans une base de données pour autoriser une dépense par carte de crédit/débit (CDC), de données en provenance d'un détenteur (1) identifiant une CDC spécifique, détermination de si oui ou non sa CDC est autorisée à supporter une dépense; et

en réponse à une détermination du fait que ladite CDC est autorisée à supporter ladite dépense, émission depuis ladite base de données (5) d'une indication d'autorisation pour un vendeur (3) desdits biens ou services, l'identification de ladite CDC ne pouvant pas être dérivée à partir dudit code d'autorisation de telle sorte que l'identification de ladite CDC ne soit pas fournie audit vendeur,

le procédé étant caractérisé en ce que ladite indication d'autorisation comprend un code d'autorisation pour suivre une transaction d'achat, le code d'autorisation comprenant une limite de dépense accordée pour une transaction.

2. Procédé selon la revendication 1, dans lequel ledit

code d'autorisation comprend en outre un ou plusieurs des éléments qui suivent: une identification dudit vendeur, des données de date et/ou d'heure, une limitation temporelle pour une transaction, le nom d'un détenteur de ladite CDC et une adresse d'un détenteur de ladite CDC. 5

3. Procédé selon la revendication 1 ou 2, dans lequel lesdites données reçues dans ladite base de données comprennent des données pour vérifier l'identité de l'utilisateur de ladite CDC. 10

4. Procédé selon la revendication 3, dans lequel lesdites données pour vérifier comprennent un numéro d'identification personnel. 15

5. Procédé selon la revendication 3 ou 4, dans lequel lesdites données pour vérifier comprennent une identification par numéro automatique d'une station d'appelant qui applique ladite identification de CDC. 20

6. Procédé selon l'une quelconque des revendications précédentes, comprenant les étapes de:

établissement d'une connexion vocale sur un moyen de reconnaissance vocale pour reconnaître l'identité d'un appelant; et 25

utilisation de la sortie dudit moyen de reconnaissance vocale pour identifier un utilisateur de ladite CDC. 30

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FIG. 1

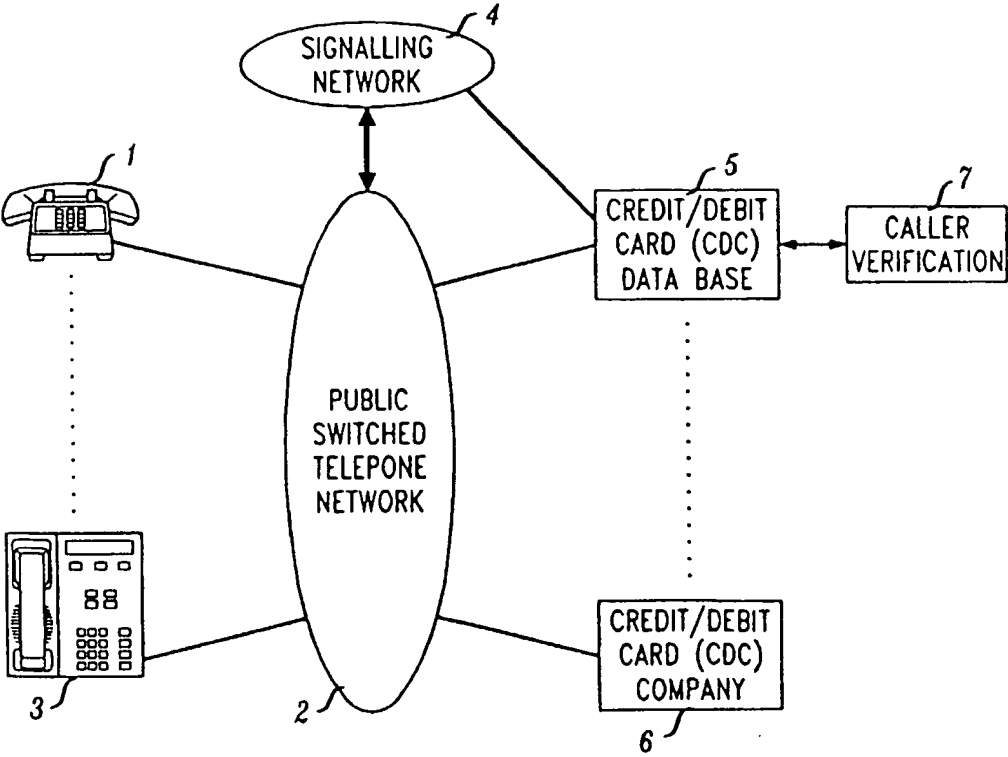


FIG. 2

